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THE RICE SITUATION IN SOUTH VIETNAM

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The Rice Situation in South Vietnam

I. Introduction

The production of rice is by far the single most important economic activity in the agricultural economy of South Vietnam. Roughly three-quarters of the agricultural land presently under cultivation is devoted to the growing of rice and roughly three-fifths of the total Vietnamese labor force is actively engaged in rice cultivation. Moreover, rice is an important commodity consumed, accounting for roughly 30 percent of the total cash expenditures on food in South Vietnam. Because of the importance of rice in the overall economy of South Vietnam, a great deal of attention has been devoted to the rice situation by both the GVN and US in recent years. The problem appears to be largely one of declining availability of domestically-produced rice which has led a country that was once an exporter of rice to become a major importer.

Unfortunately, statistics on rice production and consumption and other data, such as population, necessary to assess the rice situation are of poor quality. In the absence of reliable data, fanciful theories on the rice situation in South Vietnam abound, especially on the problem of divergence between official production figures and the amount of rice that comes to market. It has been assumed by some, for example, that large quantities of rice have escaped the country or that the Viet Cong have absorbed large quantities of rice. While there is much uncertainty, particularly in view of the fact that two key aggregates -- rice production

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and population -- are unknown with any degree of precision, it is possible to discern the broad lines of the rice situation. This memorandum will analyze the situation by presenting some of the salient characteristics of the present rice economy, and by attempting to reconcile different views on the availability of rice in South Vietnam.

II. Production

A. Varieties of Rice

More than 1,500 varieties of rice are grown in Vietnam, but for ease of classification they can be divided into four major types: single transplant, double transplant, floating, and upland. Single transplant rice is the most commonly grown, accounting for an estimated 70 percent of total cultivated rice lands. Double transplant rice is grown on 4 percent and upland rice on 5 percent of rice lands. The remainder of the rice area is planted in floating red rice which is an inferior type grown mainly in the five delta provinces along the Cambodian border.

The main planting season throughout the country begins in June and the major harvesting period extends from September through February, although some rice is harvested in South Vietnam every month of the year. Because of the shortage of water during the three to four month dry season (December-March), most rice farmers produce only one crop of rice annually. Some double cropping takes place along the central lowlands.

B. Geographical Distribution

Rice is grown in all 44 provinces of South Vietnam, but as Table 1 indicates, most of this rice is produced in the southern regions,

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primarily in the delta area. In 1967,* for example, roughly two-thirds of the crop was produced in IV Corps, 15 percent in III Corps, 10 percent in II Corps, and 9 percent in I Corps. Traditionally, the delta has been the surplus-producing area. Most of the remainder of South Vietnam produces less than it consumes and consequently, imports rice from the delta or from outside sources. (See Sections III and IV, below.)

Geographically, the rice producing areas of the delta can be divided into three distinct sub-areas: (a) provinces along the Cambodian border which are subject to annual floods that can cover rice fields several feet in depth during the rainy season and which produce floating rice, (b) provinces that border the sea where the major difficulty is salt water intrusion during the dry season, and (c) provinces that lie in the center of the delta where potential for increased production by double cropping is good.

Table 1

Production of Paddy, by Corps, 1963-68

<u>Year^a</u>	<u>(Percent)</u>				
	<u>I Corps</u>	<u>II Corps</u>	<u>III Corps</u>	<u>IV Corps</u>	<u>Total</u>
1963	8.5	8.9	15.7	66.9	100.0
1964	9.9	8.2	13.7	68.2	100.0
1965	9.1	9.8	13.4	67.7	100.0
1966	8.2	9.4	13.9	68.5	100.0
1967	8.7	9.7	15.5	66.1	100.0
1968	8.5	8.3	13.1	70.1	100.0

a. Crop year ends 31 May of year shown.

* Unless otherwise indicated, years shown in this memorandum are crop years ending on 31 May of the year shown.

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C. Output

Table 2 shows the area, production, and yield of rice in South Vietnam since 1960. These statistics are official GVN statistics gathered by the Agricultural Economics and Statistics Service of the GVN Ministry of Agrarian Reform and Agriculture and based on sample cutting and census techniques. It should be noted, however, that the quality of these statistics is poor and has been declining for several years partly because of increased insecurity and the difficulties of maintaining a competent staff in view of the draft and more lucrative employment in the private sector. Some AID officials maintain that GVN data on rice production are overstated as a result of pressure on province chiefs during the Diem regime to report a substantial increase in output each year. Similarly, Douglas Dacy of the Institute for Defense Analyses states "no serious student of Vietnam agriculture really believes that rice output for the 1966/67 crop year was 4.3 million metric tons. Rice output in Vietnam consistently has been overestimated by the Ministry of Agriculture." At the same time, however, some officials of the US Department of Agriculture (USDA) believe that Vietnamese rice production data are understated. In late 1967, for example, USDA's estimate of the 1966/67 crop was 20 percent higher than the official estimate at that time and 12 percent above the final estimate provided by the GVN and accepted by AID.

The difference in AID-USDA estimates of paddy production is accentuated by the use of a 60 percent milling rate by AID (and the GVN)

in contrast to a 70 percent milling rate used by USDA after completion of a survey of Vietnamese mill operators in 1966. Use of a milling rate of 70 percent to convert paddy to milled rice would increase the data on milled rice output by about 17 percent in any given year. Thus, if USDA's higher paddy production estimates and higher milling rate were used, the data in Table 2 would be significantly different.

Under present security conditions in South Vietnam, a complete survey of the agricultural area is impossible. Consequently, the official GVN data on rice production, which are the only production data that exist in any systematic form, are generally used throughout the US government, and are accepted by I/SV. Even if the absolute values involved are incorrect, the relative values probably are right as long as the upward or downward bias in crop estimates is consistent.

It can readily be seen from Table 2 that with the exception of 1968 there has been a continuous decline in paddy production since 1964. A substantial portion of this decline can be attributed to the war which has reduced virtually all inputs used in rice production. In the last ten years, the area under rice cultivation has decreased about 15 percent from a high in 1957 of 2.7 million hectares to 2.3 million hectares in 1967 and 1968. Although some of this former rice land undoubtedly has been shifted into other crops, a sizable portion of it presently is either fallow or abandoned as a result of the fighting. The agricultural labor force also has been reduced because of the direct and indirect effects of the war. Directly, both the creation of a large number of refugees and

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the draft have removed a large number of workers from the farm. Indirectly, the wartime boom and prosperity in Saigon and other urban areas has siphoned off a substantial number of people from the agricultural labor force. Finally, the dislocations caused by the war have limited the availability of purchased inputs such as fertilizer, seeds, insecticides, tools, etc. Moreover, government priorities and complex administrative procedures combined with the lack of strong agricultural organizations through which rural demand could be expressed effectively have discouraged importers' response to rural demand for these purchased items. Importers have tended to concentrate on satisfying demand for consumer goods in urban areas where quicker and higher profits could be realized.

Table 2

Rice Hectarage, Production, and Yield in South Vietnam
1960-68

<u>Year^a</u>	<u>Area Cultivated (1,000 hectares)</u>	<u>Production (1,000 M.T.)</u>	<u>Milled Rice Equivalent^b/ (1,000 M.T.)</u>	<u>Yield (Tons/Hectare)</u>
1960	2,400	5,092	3,055	2.12
1961	2,318	4,955	2,973	2.14
1962	2,353	4,607	2,764	1.96
1963	2,479	5,205	3,123	2.10
1964	2,538	5,327	3,196	2.10
1965	2,557	5,185	3,111	2.03
1966	2,429	4,822	2,893	1.99
1967	2,295	4,336	2,602	1.89
1968	2,296	4,688	2,813	2.04

a. Crop year ends 31 May of year shown.

b. Milling rate of 0.60.

D. Control of Production

Estimates on the extent of VC control of rice land vary. In late 1966 the embassy estimated that more than half of the delta's rice land was under VC control. According to a MACV aerial rice survey conducted during the main harvest period of 1966/67 about 37 percent of the area under rice cultivation in the delta was under VC control, 27 percent was contested area, and 36 percent was controlled by the GVN. Whatever the actual extent of VC control, it seems clear that VC efforts to halt rice shipments to the market are limited, particularly in the delta where the prime interest of the VC is revenue from the taxation of rice production, sales, and transportation. Of course, VC taxation, by widening the market margin, contributes to lower rice production in that it lessens the peasants' incentive to produce. Outright seizures of rice by the VC, however, probably are greatest in Central Vietnam where the enemy is in greater need of rice for its own consumption. Enemy consumption of rice is analyzed in Section IV, below.

III. Internal and Foreign Trade

A. Internal Movements

The demand for rice in urban areas and the 26 rice-deficit provinces of eastern and central Vietnam (I-III Corps) must be met either by shipments from the rice-surplus delta or by imports. Rapid urbanization caused by the influx of refugees and the attraction of employment in the war-inflated urban economies has resulted in a sharp increase in urban rice demand. In 1967, the requirements of Saigon, the rice-deficit

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areas and the Army amounted to an estimated 150,000 tons per month, or 1,783,000 tons annually compared with an estimated 1,300,000 tons in 1964. Only 282,000 tons of this 1,783,000 ton need came out of the delta in 1967; the remainder had to be met by production in the rice deficit areas plus imports from outside sources. Table 3 shows delta deliveries during the past decade.

Table 3

Rice Deliveries from the Delta to Saigon, 1958-68
(Thousands of Metric Tons of Milled Rice)

1958	426.5	1964	505.3
1959	575.6	1965	449.3
1960	562.3	1966	322.8
1961	553.8	1967	282.3
1962	580.3	1968	300.0 (est.)
1963	727.3		

The decline in delta deliveries has been caused largely by the decline in rice production. In addition, consumption of rice in the delta has increased (see Section IV, below). Although it is sometimes asserted that the decline in deliveries stems partly from illicit movements of rice to Cambodia, efforts to prove this theory and quantify the volume of rice involved have been unsuccessful. Available evidence seems to indicate that traditional two-way border traffic between Cambodia and South Vietnam continues as usual, but that large quantities of Vietnamese rice are not exported to Cambodia. Deliveries probably also are influenced

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by paddy prices, although here again, there never has been a meaningful investigation of the supply response of Vietnamese rice production to price incentives, or to any other stimuli. Developments thus far in 1968, however, indicate that lower paddy prices are stemming the flow of rice out of the delta (see Section V, below).

B. Foreign Trade

Because of the decline in paddy production and deliveries, South Vietnam's trade balance in rice has changed drastically. During the period 1957-63 net exports of rice from South Vietnam ranged from a low of 84,000 tons to a high of 340,000 tons annually and averaged 206,000 tons during the seven year period. Exports fell to 49,000 tons in 1964 and were banned in 1965 when South Vietnam imported 130,000 tons of rice. Imports totaled 434,000 tons in 1966 and increased to 796,000 tons in 1967. According to current estimates, imports in 1968 will be about 775,000 tons. Most of this rice is supplied by the US under the Food for Freedom program. In 1967, for example, about 90 percent of total Vietnamese rice imports came from the US and it is estimated that the US will provide more than 90 percent of Vietnamese rice imports again this year.

IV. Consumption

A. Population

The reasons for this dramatic shift in South Vietnam's trade balance in rice are the decline in production discussed in Section II and an increase in consumption. The two major factors governing rice

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consumption are the size of the population and its per capita consumption of rice. No detailed population census has ever been taken in South Vietnam. In 1936 and in 1960, however, estimates of the population were made by the central government based on data supplied by village authorities. Based largely on the growth rate yielded by these two estimates and on the results of two limited population surveys conducted by the GVN in 1962 and 1963, the US Mission has concluded that a population growth rate of 2.5 percent annually is reasonable. Using this growth rate and the GVN population figures for 1960 as a base, the population at the beginning of 1968 would have been 17,145,000. According to HES data, the population on 31 December 1967 was an estimated 17,157,370. This memorandum employs the HES data for 1967 primarily because the estimate is distributed by province. For earlier years, the US Mission estimates have been used. In 1967 the population was distributed by Corps as follows:

I Corps	3,065
II Corps	2,867
III Corps	3,137
IV Corps	5,883
Saigon	2,205
Total	<u>17,157</u>

B. Per Capita Consumption

In 1962/63 the GVN National Institute of Statistics (NIS) conducted an inquiry into rice consumption in South Vietnam. Household

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consumption in two cities (Saigon and Da Lat) and in five hamlets scattered throughout the four Corps was examined during a one year period. The amount of rice consumed ranged from 116 kilograms a year per person in Saigon to 177 kilograms per capita annually in a fishing village in Phuoc Tuy Province. Based on the unweighted daily average of rice consumption in the four hamlets plus Da Lat in the rice deficit areas, consumption in the three northern rice deficit corps areas was 159 kilograms per capita per year. For IV Corps the consumption was found to be 472 grams daily per person, or 172 kilograms per year per person, based on consumption in one hamlet in Phong Dinh Province. Using this three-way average annual per capita breakdown -- 159 kilograms for I-III Corps, 172 kilograms for IV Corps, and 116 kilograms for Saigon -- annual consumption by Corps in 1967 would have been as follows (in thousand metric tons):

I Corps	487.3
II Corps	455.9
III Corps	498.8
IV Corps	1,011.9
Saigon	255.8
Total	<u>2,709.7</u>

For South Vietnam as a whole, annual rice consumption per capita in 1967 would have been 158 kilograms, which is close to the USDA estimate of 156 kilograms.

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Although this per capita rice consumption figure seems reasonable, the NIS survey on which it is based was taken five years ago and the number of hamlets studied during the survey was extremely small. A new consumption estimate based on production, non-consumption uses of rice, and internal and foreign trade in rice is presented in Table 4. This table shows that in 1967 per capita consumption of rice ranged from a low of 139 kilograms per capita in I and II Corps to a high of 186 kilograms per capita in IV Corps with a country-wide average of 168 kilograms per capita annually, or about one pound per day per person. This estimate seems high compared with other basically rice-eating countries, but it should be noted that in some of these other countries non-rice cereals are consumed in quantity, whereas the consumption of non-rice cereal in South Vietnam is very low. Table 4 excludes changes in stocks, but since these changes would not vary by more than an estimated $\pm 100,000$ tons, the omission of stocks would not change the overall estimates to any significant degree.

An analysis of rice availability based on this same methodology for the years prior to 1967 shows that since 1962, consumption of rice in South Vietnam has been rising steadily at an average annual rate of about six percent. This growth in consumption is not surprising in view of the increase in the population. Moreover, available data seem to indicate that there is some income elasticity of demand for rice, particularly in the rapidly growing urban areas where incomes have increased.

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The wide variance in consumption figures illustrates the impossibility of giving a definitive answer to the question of whether or not there is a surplus or deficit of domestically produced rice in South Vietnam. Those who maintain that there is a missing surplus of rice cite the large difference between delta production and deliveries to Saigon. If, however, the production figures are overstated, as suggested earlier, there is no such surplus. If, on the other hand, the production figures are correct, the case for a surplus of rice that either is being consumed by the enemy or escaping the country can be made using the 1962/63 consumption estimates. The application of these estimates to the rice availability data shown in Table 4 would yield an unexplained surplus of 82,000 tons in the delta in 1967 and a country-wide surplus of 167,000 tons. Part of this surplus, however, could be accounted for by additions to stocks. Finally, the use of the higher consumption estimates in Table 4 eliminates any surplus. The fact is that the question is unanswerable given the nature of the data.

C. VC/NVA Rice Consumption

Allowances for enemy rice consumption would not greatly alter the estimate of rice availability presented in Table 4. The VC component of enemy rice consumption is already accounted for by the use of total population figures in Table 4. Estimates of rice consumption by NVA forces are subject to a wide margin of error because of the lack of precise data on the number of NVA troops present in South Vietnam, the per capita rice consumption by these troops, and the amount of rice from

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external sources consumed by these forces. Nevertheless, any plausible estimate of these unknowns leads to the same conclusion: NVA consumption of South Vietnamese rice is negligible compared with the total availabilities of rice presented in Table 4. Indeed, allowance for NVA rice consumption would be lost in the rounding of the numbers in Table 4.

In order to illustrate the magnitudes involved, the following assumptions are made for 1967: (a) the total number of NVA forces present in South Vietnam on 31 December 1967 was 100,000 distributed 45,000 35,000 20,000 and 0 for I-IV Corps, respectively (estimate by I/SV); (b) these forces consumed by Corps 8,300, 5,100, and 5,000 tons of rice annually (estimate by I/SV), and (c) the NVA forces brought in an estimated 60 tons of rice daily from external sources (estimate by I/L). These assumptions lead to the conclusion that 100,000 NVA forces consumed 18,400 tons of rice in 1967, or 184 kilograms daily per capita, which was more than covered by the 22,000 tons brought into South Vietnam in 1967. Since it is known, however, that NVA forces were actively engaged in rice collection in I and II Corps, it appears that the conclusion stated above greatly oversimplifies the problem. Undoubtedly, NVA forces must have experienced local rice shortages which were not covered by their external supplies. Indeed, there is no real basis to assume that all external rice supplies went only to NVA forces. Regardless of what rice exchanges between VC and NVA forces took place or what local shortages were experienced, however, it seems clear that NVA procurement of rice was insignificant in terms of the total rice availability picture presented in Table 4.

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Table 4
Rice Availability, 1967

	<u>Population^{a/}</u> <u>(Millions)</u>	<u>Milled Rice</u> <u>Production*</u>	<u>Rice Avail-</u> <u>able For</u> <u>Consumption^{b/}</u>	<u>Internal</u> <u>Shipments*</u>	<u>Imports</u>	<u>Rice Avail-</u> <u>able For</u> <u>Consumption*</u>	<u>Annual Per</u> <u>Capita</u> <u>Consumption</u> <u>(Kilograms)</u>
I Corps	3.06	226,000	181,000	21,492	418,000	822,492	139
II Corps	2.87	252,000	202,000				
III Corps	3.14	403,000	322,000	104,573	378,000	960,766	180
SAIGON	2.20	0	0	156,193			
IV Corps	5.88	1,720,000	1,376,000	-282,258	0	1,093,742	186
Total	17.15	2,602,000	2,081,000	0	796,000	2,877,000	168

* Metric tons.

a. Population on 31 Dec. 67, according to HES.

b. Production minus the official estimate of 20% for seed, feed, losses, etc.

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V. The Situation in 1968

Rice production was not directly affected by the Communist attacks during Tet. Most of the rice harvest was completed before Tet and agricultural officials reported an increase of eight percent above the 1967 crop. Almost all of this increase resulted from higher output in IV Corps, particularly in those provinces that suffered heavy flood damage in 1967. As a result of this increased output, a survey team which toured the delta in mid-April 1968 reported that the surplus available for delivery to Saigon could total more than 300,000 tons in 1968 compared with 282,000 tons in 1967 if price incentives and sufficient transportation were available.

Deliveries during the first nine months of 1968, however, totaled only 205,000 tons compared with 216,000 tons during the same period of 1967. This decline stems from the fact that the cost of transportation and other costs that enter into the margin between Saigon rice prices and delta paddy prices have increased sharply since Tet. Indeed, this "transportation-plus" component of rice prices may well have doubled since Tet. Simultaneous with the increase in these costs, the large stock of imported rice held by the GVN in Saigon (185,500 tons at the end of September) has exerted a depressing effect on rice prices. The continued availability of this imported rice at a price subsidized by the government prevents passing on increased transport costs to the consumer. It appears that the merchant community is convinced that these imported stocks are entirely adequate to permit the GVN to continue sales at the

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prices it has established. Thus, there will be no seasonal price increase from which merchants can derive their profits. Moreover, there are real costs involved in holding rice (storage and interest, for example). Since merchants are unable to pass these costs onto the consumer in the form of higher prices, they are attempting to cover the costs by passing the burden back to the farmers in the form of prices discounted to allow for these costs. This "discount" is undoubtedly in addition to the reduction in paddy prices caused by increased transport costs. Indeed, if the current paddy price is deflated by the cost-of-living index, the result is a real paddy price that is the lowest since 1959. Under these circumstances, the hope for high levels of delta deliveries this year may not be fulfilled.

In order to stimulate the rice trade, the GVN purchased 40,000 tons of rice in April from delta merchants at a price above the going market level. This purchase apparently was too small to have the desired effect. In mid-July, therefore, the GVN decided to purchase another 60,000 tons of rice from delta merchants and to announce a guaranteed support price to be maintained indefinitely. Not until mid-October, however, did the GVN actually purchase the rice, and no more has been said about announcing a guaranteed support price. However, unless the government also acts soon to raise the price of imported US rice, this one-time purchase may have no more effect on the rice market than did the April purchase.

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